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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/025,532 | 12/26/2001 | Hiroyoshi Nakajima | Q67773 | 6286 |

7590 05/05/2003

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EXAMINER

LEE, RIP A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 1713 | |

DATE MAILED: 05/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|-----------------------------|-----------------|-----------------|
| Offic Action Summary | Application No. | Applicant(s) |
| | 10/025,532 | NAKAJIMA ET AL. |
| | Examiner | Art Unit |
| | Rip A. Lee | 1713 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-5 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-5 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____ .
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 and 6. 6) Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 11-217511 to Suzuta *et al.*

The prior art of Suzuta *et al.* discloses a polyolefin resin composition comprised of 0.05-10 pw of particulate inorganic filler having particle diameter in the range of 5-400 nm (claim 1). Note that the table on page 6 shows the dispersion diameter of the inorganic filler. The reference is silent with respect to the primary particle diameter, D , and therefore, information regarding the degree of coagulation, θ , is not available. However, in view of the fact that the dispersion diameter lies within the range presently claimed, a reasonable basis exists to believe that the prior art material, when measured, would exhibit the diameter ratio, d/D (and thus, θ), recited in the present claims. Since the PTO can not conduct experiments, the burden of proof is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02.

5. Claims 1-5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 5,585,431 to Igarashi *et al.*

Igarashi *et al.* teaches an olefin polymer composition comprising 0.05-20 pw of a fine powder having an average particle diameter of 0.01-10 μm wherein the olefin copolymer is an ethylene- α -olefin copolymer and the powder is aluminum hydroxide (claims 1 and 10). Neither the dispersion diameter, d , nor the primary particle diameter, D , has been measured in the reference. As such, Igarashi *et al.* is silent with respect to the diameter ratio, d/D and coagulation degree θ . Nonetheless, in view of the fact that the average particle size lies well below the upper limits of the range in the present claims, a reasonable basis exists to believe that

the prior art material, when measured, would exhibit the diameter ratio, d/D (and thus, θ). Since the PTO can not conduct experiments, the burden of proof is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02.

6. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over anticipated by U.S. Patent No. 5,910,523 to Hudson.

The prior art of Hudson relates to polyolefin nanocomposites comprising 0.1-50 wt % of inorganic solid which have a thickness of 1-30 nm (claim 1). The polyolefin is polyethylene or polypropylene (claim 4). Neither the dispersion diameter, d , nor the primary particle diameter, D , has been measured in the reference. As such, Hudson is silent with respect to the diameter ratio, d/D and coagulation degree θ . Nonetheless, in view of the fact that the dimension of the platelet lies well in the lower end of the range recited in the present claims, a reasonable basis exists to believe that the prior art material, when measured, would exhibit the diameter ratio, d/D (and thus, θ). Since the PTO can not conduct experiments, the burden of proof is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02.

Information Disclosure Statement

7. The information disclosure statement submitted on May 17, 2002 (Paper No. 3) cites several references from a European search report. These references have been reviewed in more detail here:

U.S. Patent No. 3,300,329 (designated X reference) describes a composition containing inorganic filler in which the particle size is described as "as small as sub-micron ranges (col. 2, line 29)." In the examples, materials having particle size of less than 325 mesh are used. This places the upper bound on particle size at about 40 μm , which is an order of magnitude greater than the upper limit of the range recited in the present claims. Although the term "less than 325 mesh" may read upon the dimensions described in the present claims, it is deemed that the prior art, viewed as a whole, does not reasonably anticipate the present claims.

U.S. Patent No. 3,325,442 (designated X reference) relates to polyolefin compositions containing carbon black. No indication of the particle size of filler could be found. As such, the reference can not anticipate the present claims.

WO 99/47598 and WO 00/22010 describe polyolefin nanocomposite materials containing inorganic filler. In the former reference, at least one dimension of the clay filler is less than 20 nm (page 1, line 5), and in the latter reference, the layered silicate has a thickness of 5-100 Å (0.5-10 nm) (page 7, line 20). These references are deemed relevant to the current application. Use of these references is currently supplanted by the rejection over Hudson, whose reference entails essentially the same subject matter. The two patents may be cited at a later time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (703)306-0094. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (703)308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703)746-7064. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

ral

April 30, 2003



DAVID W. WU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700